

What is claimed is:

1. A circuit for reducing the current density on a bus coupled to a plurality of circuits, the circuit comprising:
 - a first amplifier circuit of the plurality of circuits, wherein the first amplifier circuit is configured to provide a first output current for the bus; and
 - a first current source circuit that is arranged to provide a first local current at an output of the first amplifier circuit such that at least a portion of the first output current is prevented from being carried on the bus.
2. The circuit of Claim 1, further comprising
 - a load circuit that is coupled to the bus.
3. The circuit of Claim 1, wherein
 - the first amplifier circuit is configured to provide the first output current to the bus in response to a first input voltage signal, and wherein
 - the first output current is a differential current, and the first input voltage signal is a differential voltage signal.
4. The circuit of Claim 1, further comprising:
 - a second amplifier circuit of the plurality of circuits, wherein the second amplifier circuit is configured to provide a second output current for the bus.
5. The circuit of Claim 4, further comprising:
 - a second current source circuit that is configured to provide a second local current at an output of the second amplifier circuit such that at least a portion of the second output current is prevented from being carried on the bus.
6. The circuit of Claim 5, further comprising:

a third amplifier circuit of the plurality of circuits, wherein the third amplifier circuit is configured to provide a third output current to the bus; and

a third current source circuit that is configured to provide a third local current at an output of the third amplifier circuit.

7. The circuit of Claim 6, wherein one of the amplifier circuits in the plurality of circuits is not saturated, and each of the other amplifier circuits in the plurality of circuits is saturated.

8. The circuit of Claim 1, further comprising
another bus that is coupled to another plurality of circuits;
another amplifier circuit of the other plurality of circuits, wherein the other amplifier circuit is configured to provide another output current for the other bus; and
another current source circuit that is arranged to provide another local current at an output of the other amplifier circuit such that at least a portion of the other output current is prevented from being carried on the other bus.

9. The circuit of Claim 1, wherein
the first amplifier circuit includes:
a first differential pair; and
a first tail current source that is configured to provide a first tail current,
and wherein
the first local current corresponds to a fraction of the first tail current.

10. The circuit of Claim 9,
wherein the fraction of the first tail current is approximately half of the first tail current.

11. An amplifier array circuit with a plurality of buses for a folding analog-to-digital converter circuit, the amplifier array circuit comprising:
a plurality of transconductance circuits;

a plurality of load circuits, wherein each of the plurality of load circuits is separately coupled to one of the plurality of buses,
wherein a first bus of the plurality of buses is coupled to a portion of the plurality of transconductance circuits; and
a first current source circuit, wherein the first current source circuit is coupled to an output of a first of the portion of the plurality of transconductance circuits, and wherein the first current source circuit is arranged to provide a first local current at the output of the first transconductance circuit such that a maximum magnitude of current density is decreased on at least the first bus of the plurality of buses.

12. The amplifier circuit of Claim 11, wherein
one of the portion of the transconductance circuits is not saturated, and
wherein every other transconductance circuit in the portion is saturated.
13. The amplifier circuit of Claim 11, further comprising:
another current source circuit that is coupled to an output of another transconductance circuit in the portion of transconductance circuits.
14. The amplifier circuit of Claim 11, further comprising:
a plurality of current source circuits that includes the first current source circuit,
wherein each of the plurality of transconductance circuits has an output coupled to a separate one of the plurality of current source circuits.
15. The amplifier circuit of Claim 14,
wherein each of the plurality of load circuits includes a load current source, and
wherein each of the plurality of current source circuits shares a bias line in common with one of the load current sources.
16. The amplifier circuit of Claim 14, wherein
each of the plurality of transconductance circuits is configured to provide a separate transconductance current on one of the plurality of buses, and wherein

each of the plurality of current source circuits is configured to supply a separate local current such that at least a portion of the output current from each of the plurality of transconductance circuits is prevented from being carried on each of the plurality of buses.

17. The amplifier circuit of Claim 11, wherein
the first transconductance circuit is configured to provide the first transconductance current in response to a differential voltage;
the first transconductance current is differential; and wherein
the first local current is differential.
18. The amplifier circuit of Claim 11, wherein
the first transconductance circuit includes:
a first differential pair; and
a first tail current source that is configured to provide a first tail current,
and wherein
the first local current corresponds to a portion of the first tail current.
19. The circuit of Claim 18,
wherein the portion of the first tail current is approximately half of the first tail current.
20. A circuit for decreasing current density on a bus coupled to a plurality of circuits,
the circuit comprising:
means for amplifying a first input signal to provide a first current to the bus;
means for providing a first local current; and
means for canceling out at least a portion of the first current with the first local current such that a maximum magnitude of a total current on the bus is reduced.